REMARKS

Claims 1-3, 5-20, and 24-31 are currently pending. Claims 4 and 21-23 were previously cancelled. Claims 1, 24, 27, 29, and 30 are amended by present response without prejudice to subsequent presentation of these claims in a continuing or related application. Claims 1-3, 5-20, and 24-31 were rejected under 35 U.S.C. section 103(a) as being unpatentable over Mullendore et al. (U.S. Public. No. 2003/0185154) in view of Kaul et al. (U.S. Public. No. 2005/0050211). These rejections are respectfully traversed.

The claims have been amended to facilitate prosecution, for example, to clarify the terms "initialize" and "OX_ID" and "RX_ID". These amendments are supported throughout the Specification, for example, at paragraph [0010] and paragraphs [0015] to [0018], among other places. While Applicants have made this amendment in an effort to expedite prosecution, the Applicants believe that the previously presented claims were fully patentable. The Applicants reserve the right to further prosecute these claims in the future.

The present application generally describes a system for improving transmission of data, for example, performing a SCSI write operation, over a high latency network. Various embodiments in the Application describe a switch close to an initiator Host seeking to write to a target. In response to receiving the Host's write command, the switch anticipatorily sends transfer ready messages to the Host without waiting to receive transfer ready messages from the target. "The apparatus includes a first Switch close to the initiator in a first SAN and a second Switch close to the target in a second SAN. In various embodiments, the two Switches are border switches connecting their respective SANs to a relatively high latency network between the two SANs. . . . . During operation, the method includes the first Switch sending Transfer Ready (Xfr_rdy) frame(s) based on buffer availability to the initiating Host in response to a SCSI Write command from the Host directed to the target. The first and second Switches then coordinate with one another by sending Transfer Ready commands to each other independent of the target's knowledge. The second switch buffers the data received from the Host until the target indicates it is ready to receive the data." (Spec., para. [0010])

According to various inventive embodiments, switches carry out the above process by keeping track of specific transactions/exchanges between, for example, the host and the target, or the host and the first switch. In various embodiments, the OX_ID and RX_ID fields of a frame's header are used to keep track of different transactions. (Spec., para. [0010]) This is a novel aspect of the invention as switches do not ordinarily keep track of individual transactions

between a host and a target, and generally do not use the OX_ID and RX_ID fields. (Spec., para. [0016])

Independent claims 1, 24, 17, 29, and 30 recite various limitations relating to modification or initialization of OX_ID and RX_ID. The Examiner correctly points out that Mullendore does not teach or suggest "a frame having a header with an OX_ID or RX_ID" and does not modify or initialize either the OX_ID or RX_ID of the write command, or of the transfer ready command, as claimed. (Office Action, pages 4 and 11) The Examiner relies on Kaul to teach or suggest these recitations, citing paragraphs [0023] and [0024] of Kaul.

However, Kaul fails to make any reference to the of OX_ID and RX_ID fields in these cited paragraphs or in any other sections of Kaul. Rather, the cited paragraphs describe "[a] method and apparatus to manage network addresses." (Kaul, Abstract)

> [0023] Whenever a call terminal inside LAN 110 wants to send a packet outside LAN 110, it forwards the packet to NAT 108. The IP header of the packet uses the local address of the call terminal for the source address of the packet. NAT 108 receives the packet on its local interface, modifies the IP header of the packet to change the source address to the global address of LAN 110, and then sends the packet to network 112.
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> [0024] Whenever a packet for a call terminal within LAN 110 is received by NAT 108 at its global address interface, it uses the combination of global address and the port number at which it received the data to map it to a local address and port number for the destination call terminal within LAN 110. Before forwarding the packet to the destination call terminal within LAN 110, NAT 108 changes the destination address in the IP header from the global address to the local address of the destination call terminal in LAN 110. Once this is done, NAT 108 forwards the packet to the appropriate destination call terminal in LAN 110."

The Examiner argues: "Similarly, Kaul discloses a data packet having routing header identifying a source and destination target; in the same way that a RX_ID is used to specifies [sic] a target. In other words, OX_ID and RX_ID are being interpreted as addresses for a source and a destination." (Office Action, page 4 and 11) But the Examiner's attempt to analogize the OX_ID and RX_ID fields to source and destination identifier fields misses the point that, in various embodiments, OX_ID and RX_ID are used to specify particular "exchanges" or "transactions" between the source and destination devices, not the devices themselves. As discussed in the Specification regarding particular embodiments: "For the hosts and targets within a network to keep track of the various *transactions* between each other, two fields are available in the Fibre Channel header for all SCSI Command, Data, Response, and Transfer Ready frames. The first field is called the Originator Exchange Identifier or OX_ID. The second field is called the Receiver Exchange Identifier or RX_ID." (Spec., para. [0015] (emphasis

added)) Accordingly, in various embodiments described in the Specification and that would be known to those with skill in the art, OX_ID and RX_ID are separate and distinct fields from the source and destination identifiers. (*See also* Figure 3, which discloses a diagram of a header field 20 that includes both OX_ID field 32 and an RX_ID field 34, as well as fields for S_ID and D_ID.)

It is important to note that the pending claims achieve numerous advantages over the cited art. The cited references fail to disclose or suggest such advantages. As noted above, by modifying the OX_ID and/or RX_ID values, an intercepting switch may track exchanges. In addition, the cited references neither disclose nor suggest that an apparatus might need to track such exchanges in order to manage data transfers where transfer ready commands have been sent to the host before a transfer ready command has been received from the target. Thus, the techniques of the present invention intelligently operate to modify the OX_ID or RX_ID to, for example, allow the switch to "operate as a proxy for the target" as recited in independent claims 24 and 27, among other claims.

Furthermore, various independent claims also recite "initializing" the RX_ID or OX_ID fields. This claim element is also not taught by the cited references. It is true that some routers will sometimes translate source and destination addresses at NAT subnet boundaries as Kaul describes. However, even assuming these source and destination addresses were properly interpreted to be OX_ID and RX_ID values, which the Applicants strongly dispute, Kaul still does not "initialize" source and/or destination addresses at a switch. Applicants respectfully assert that initialization is not the same as modification, contrary to the Examiner's interpretation. Rather, initialization is performed to set an initial undefined value to one that is initialized. Applicant respectfully asserts Mullendore and/or Kaul fail to disclose or suggest the recitations relating to OX_ID and RX_ID noted above. These recitations are not taught or suggested, and cannot be assumed.

While Mulldendore was not cited as teaching modifying or initializing "OX_ID" or "RX_ID", Muillendore was nevertheless reviewed for teachings relevant to the claimed invention. However, Mullendore does not overcome the deficiencies of Kaul.

Based on the foregoing, it is submitted that the independent claims, and the claims that depend upon them, are patentable over Mullendore and Kaul, the cited references. Thus, it is respectfully requested that the Examiner withdraw the rejection of the claims under 35 USC §103.

CONCLUSION

In light of the above remarks, the rejections to the independent claims are believed overcome for at least the reasons noted above. Applicants' Representative believes that all pending claims are allowable in their present form. If the Examiner has any questions or concerns for Applicants' Representative, the Examiner is encouraged to contact him at the number provided below.

Respectfully submitted,
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